

## RELATIONSHIP BETWEEN BODY MASS INDEX AND PHYSICAL SELF-ESTEEM IN ROMANIAN ADOLESCENTS

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### ABSTRACT

**Purpose :** The purpose of this study was to identify determinants of physical self-worth in Romanian adolescents and their relationship to physical self-esteem and Body mass index (BMI).

**Design and methods:** A quantitative correlational research design was utilized. The Children and Youth Physical Self- Perception Profile (CY-PSPP, Ecklund, Whitehead, & Welk, 1997) was completed by a sample of 168 high school students (age range = 15-18 years), from one high school in city of Cluj. CY-PSPP was recently adapted to Romanian norms (Craciun et al., 2010).

**Results:** Quantitative data from this study revealed negative correlations between BMI and all self-perceptions ( $p < 0.05$ ), except strength, which showed a positive correlation ( $p < 0.05$ ).

**Conclusions:** This paper was conducted with the intention of a better understanding relationship between perceived physical self-esteem and BMI. The majority of components of physical self-esteem were negatively correlated with BMI increases. Thus, it means that physical self-perceptions will decrease as physical activity levels decrease.

**Keywords:** physical activity, BMI, physical self-worth, global self-worth, self-perceptions

### Introduction

Increased knowledge of physical activity levels in children and adolescents and its relation to body composition and to individual perceived physical self-esteem ought to be of interest for professionals working with physical activity and sciences dealing with human bodily movement. Childhood obesity is a major world health, social and economic issue. For individual children, the immediate psychosocial effects of social isolation, discrimination, and peer problems can accompany childhood obesity. By adolescence lower self-esteem combined with increased rates of sadness, loneliness and nervousness has been reported for obese children. It is known that children are becoming increasingly physically inactive. This is concerning as there are many well-documented health implications for the individual as a result of being overweight or obese (Pate et al., 1995). Identification of sedentary children as risk of developing hypokinetic diseases is imperative to all stakeholders with an interest in children's health. At present there is no known data reporting on the physical activity levels, body mass index, physical self-esteem and the relationship between these factors in Romanian adolescents. Longitudinal research addressing causal relationships between overweight/obesity and self-esteem in young children is extremely limited. For elementary school-aged children, longitudinal studies have suggested greater decreases in self-esteem over time for obese than non-obese children and an inverse relationship between change in adiposity and change in self-

esteem. Therefore, this research may be useful for targeting specific groups of students by promoting and implementing physical and psychologically appropriate education programs.

There is a need to better understand the determinants of physical activity in youth. As perceived competence theory suggests, perceptions that the children hold of themselves may be important motivational influences for current and future physical activity (Biddle et al. 1993). Through the study of self-perception, important findings for the motivational determinants of physical activity in adolescents can be explored. The possession of positive feelings of self-worth or high self-esteem has been considered important, not only as an index of mental well-being but also as a mediator of behavior (Fox 1988). Research shows that the self-esteem is associated with positive achievements and socially related behaviors such as leadership ability, satisfaction, decreased anxiety, and improved academic and physical performance (Hayes et al. 1999). Such research has highlighted the importance of self-esteem in physical education and exercise programs (Biddle et al. 1993). Self-worth is generally accepted as a fundamental contributor to human behavior. Once thought to be a unidimensional construct, self-worth is now seen as a multifaceted, multidimensional hierarchical structure with many different domains and sub-domains. Sub-domains affects one's self-concept or self-perception at each level in the hierarchy – affecting first one's physical self worth (PSW) and ultimately global self-worth (GSW). One's

GSW, at the apex of the hierarchical construct, is a relatively stable trait. As one descends the hierarchy, self-concept becomes less stable and more situation-specific (Marsh & Shavelson, 1985). In addition to the many health benefits, studies (Sonstroem, 1984) have confirmed that physical activity (PA) is also associated with an increase in self-confidence and an improved sense of well-being. Research hallmarks that physical activity has important role in one's emotional and mental health, reducing symptoms of anxiety and depression and aids in decreasing stress levels. Physical self-worth is thought to be a powerful and strong domain within the hierarchal structure of global self-worth. Fox and Corbin (1989) developed the Physical Self-Perception Profile (PSPP) based on the hierarchical model and measures physical self-perception and its relationship to overall global self-worth. The PSPP is both hierarchical and multidimensional with GSW at the apex of the hierarchal structure and physical selfworth (PSW) at the domain level with (a) skill, (b) body attractiveness, (c) fitness and conditioning, and (d) physical strength as sub-domains.

The PSPP was tested on youth, adolescents and college students and found valid and reliable in testing physical self-perception (Welk et al., 1997). Subsequently, Ecklund, Whitehead, & Welk, 1997) and modified and validated the PSPP for its use with children and youth (CY-PSPP) as young between nine years and high school age.

## **Methods**

### *Participants*

168 high school students (age range = 13-18 years), from one high school in city of Cluj were asked to volunteer their participation in this study. 88 were boys (58%) and 80 were girls(42%). Permission to conduct this study was obtained from the school manager, participants and their parent with signed informed ascent letters prior to any data collection.

### *Instrument*

The Children and Youth Physical Self-Perception Profile (CY-PSPP) is used in this study to identify the psychological factors which have a relationship with physical activity levels among Romanian adolescents.

The CY-PSPP includes scales to address perceptions of Physical Conditioning (Cond), Sports Competence (Sport), Body Attractiveness (Body) and Strength (Strong) as well as scales to assess Physical Self Worth (PSW) and Self-Esteem (SE). Each scale is assessed with six items scored on a four-point scale with the average score used to represent the value for the scale. Respondents are first asked to decide which side of a contrasting description is most like them

(e.g., some kids are pleased with the appearance of their bodies BUT other kids wish that their bodies looked in better shape physically). All of the items use a structured alternative format to reduce the tendencies for socially desirable responses and approximately half of the items were reverse coded to keep the instrument more interesting for participants. The CY-PSPP was administered by the researcher during physical education classes. Participants were told to answer each question as best they could and to choose the statement that best described them. There were no right or wrong answers and questionnaires would not be graded. Before the questionnaire was handed out to all participants were guided through a practice question to prevent questionnaires from being filled out incorrectly. Confidentiality was assured as participants placed a number code on the questionnaire. Participants were free to ask questions about the questionnaire at any stage. The researcher then examined each questionnaire to be sure it was completed with the age, gender, and grade filled in correctly. Questionnaires not filled out correctly were then removed from the study.

### *Body mass index (BMI)*

It is also important to relate physical activity levels and physical self esteem to a health outcome, in this case, body composition. An appropriate body composition measure for the studied population is to calculate BMI from height and weight measurements. BMI has been correlated with other body composition measures, is noninvasive and convenient for both screening and large field work studies (Lynch, Wang & Wilcken, 2000; Dietz & Bellizzi, 1999).

This study investigated whether there is a relationship between physical self-esteem and BMI or overweight and obesity. For classification of overweight and obesity, definitions provided by Cole, Bellizzi, Flegal & Deitz, 2000), were used due to their appropriateness for the studied population. It is generally acknowledged that as physical activity increases, BMI decreases (Tudor-Locke et al., 2001). There is no data on the relationship between physical self esteem and BMI in adolescent Romanian population. Caution must be taken, however, when using BMI with an adolescent population due to differences in the timing and tempo of sexual maturation (Lynch et al., 2000).

### *Design*

A quantitative correlational research design was utilized. The Children and Youth Physical Self- Perception Profile (CY-PSPP, Ecklund, Whitehead, & Welk, 1997) was completed by a sample of 168 high school students (age range = 15-18 years), from city of Cluj. CY-PSPP was recently adapted to

Romanian norms (Craciun et al., 2010). Body composition measure for the studied population was calculated from height and weight measurements.

### Results

In adolescent 15-18 years of age (Table 1) the total score of CY-PSPP ranged from 73-140 in boys and 73-138 in girls. Semnificant gender differences were found in global self – esteem, total score of CY-PSPP and physical condition.

Body mass index was calculated for 88 boys and 80 girls and compared to the International BMI cut point to examine the prevalence of overweight and obesity. The prevalence of overweight was 19.7% for boys and 20.4% for girls. 7.6% from boys and girls were obese. The rate of increase in BMI was greater than Swedish or Australian children but lower than in American adolescents (Tudor-Locke et al., 2001).Quantitative data from this study revealed significant negative correlations between BMI and Physical Condition ( $r = -.270, p < 0.01$ ), Sports Competence ( $r = -.135, p < 0.05$ ) and Physical Self-worth ( $r = -.210, p < 0.01$ ), with Attractive Body ( $r = -.320, p < 0.01$ ) being the most significant.. A positive correlation existed between BMI and Strength Competence ( $r = .180, p < 0.01$ ).

### Conclusions

The concern about the rapid increase in the percentage overweight and obese children and adolescents was an important factor for starting this study. This paper was conducted with the intention of a better understanding relationship between perceived physical self-esteem and BMI. The majority of components of physical self-esteem were negatively correlated with BMI increases. Thus, it means that physical self-perceptions will decrease as physical activity levels decrease. Focusing on an increase in physical activity rather than a decrease in body weight will be a much more constructive

approach for adolescents, avoiding the stigma put on these when weight is the only focus. With obesity levels rising and a decrease in children and adolescents’ physical activity levels evident, it is imperative to stand on interest in children’s health work towards developing opportunities to encourage and support daily participation in physical activities.

Many factors are important for a healthy lifestyle, such as cultural, social and personal factors. Physical self-esteem, a personal factor formed by the social interaction between individual was measured by CY-PSPP. By translating the questionnaire and test it for validity and reliability in Romania we provided an instrument that could measure perceived physical self-esteem for children and adolescents.

In conclusion, physical activity offers metabolic adaptation that benefit health even without a measurable decrease in weight. Focusing on an increase in physical activity rather than in body weight might be a much more constructive approach for children. It avoids the stigma placed on these young people when weight is the focal point. This recommendation might help in goal setting for professionals, such as physiotherapist and physical educators, working with children and adolescents at risk for obesity. Perceived physical self-esteem is an important predictor and recent studies indicates the possibility to increase its level in adolescent with physical activity intervention program (Lindwall, 2004). Since perceived physical self-esteem contains both perceptions of abilities in physical fitness and strength, sense of body attractiveness and sport competence this model ought to be built up to promote broad variety of motor skills combined with moderate to vigorous intense in physical strength and physical fitness.

**Table 1.** Median, range and gender differences for CY-PSPP and sub-domains in adolescents 15-18 years (n = 168)

	Boys N=88		Girls N=80		Total N=168		Gender diff (P)
	Median	Range	Median	Range	Median	Range	
Global self esteem	21	14-24	18	8-24	20	8-24	0.01
Physical self worth	18	11-24	17	11-24	18	11-24	0.22
Sport Competence	19	8-24	18	9-24	18	8-24	0.13
Body Attractiveness	18	9-24	17	8-24	17	8-24	0.09
Physical Strength	18	10-24	17	7-24	17	7-24	0.35
Physical Condition	20	8-24	18	7-24	19	7-24	0.01
Total CY-PSPP	109	75-140	102	72-136	105	72-140	0.04

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